Notebook, N-06-04-05

The only dated entry in this notebook is from April 1906. All entries are by Edison. The book contains storage battery endurance tests for cells using cobalt or nickel flake. The tests involved the use of various substances to hold the flake in the cell tube, including molasses, glucose, and caramel. There are also entries regarding experiments with the Lalande primary battery. The pages are unnumbered. Approximately 100 pages have been used.

61¼	12.7/	Mol	26.8	Coll-70/30 flake (Covered good)	3.14 grams	Not plated (Wire)	(5.031)
	12.25		26.3	Covered flake 30%	3.08	Tabs (Dark and good)	5.030
61.3	12.25		26.3	(Layers well very stiff not have broken tabs)	2.93 "	Good [illegible]	4.785
67.8	13.8		18.9	Covered perfect grams (Good Lustrous)	3.15	Tabs broken well (Good)	4.675
	Lustrous		Well	Covered perfect grains-Good lustrous -	3.61	Tabs broken well Overall flake	5.350
68.8	13.8		17.2	Stiff (Grains Well-Good Color)	3.71	Good Tabs broken well -	5.350
"	"		"	"	3.60	Corrugated and good [illegible]	5.237
"	"		"	"	3.80	Corrugated [illegible] good	5.520
68.4	13.8		17.2	Covered Color Corrugated - Good	3.63	(Wrinkled) Color	5.267
71.4	14.2		14.2	Covered, Not Lustrous	3.59	Covered OK -	4.960

Thus 20 on 130 (Not well covered) Corrugated (1.12) 1.25 gd.
61/64 11.55/Mol 26.19 Co flake, 3.35 grams (Coll Tide plate) **Cobalt** Overplate
Same Corrugated (Thus 20 on 40 Covered Color Thus 20 on 130) Corr 1.25 Well **Cobalt** "
61/64 12.18 Mol 26.18 Ni flake grid Covered 3.29 g (Corr 1.25 Well Thus 20 on 40) **Nickel** "
Iron — Mangnetic
Most even of all the runs, 70/30, Coll (70/30 flake) Sheen.
No flake

	Coll	50	100	150	200	250	300	350	400	450	500	550	597	627	677	727
2	777	747	697	741	725	697	721	775	712	683	572	447	415	475	437	395
3	712	692	312	692	732	712	745	740	722	772	652	600	555	595	572	532
4	651	655	647	700	740	725	775	717	658	648	652	587	577	560	540	530
5	390	392	324	375	75	37	25	40								Mol
6	656	602	630	657	695	605	668	620	582	577	549	510	500	463	462	476
7	352	315	321	323	290	275	260	227	234	222	220	202				
8	717	735	725	710	665	660	670	615	572	520	482	426	370	400	407	402
9	647	665	583	640	530	453	397	330	280	249	245	215	Mol			
10	838	785	836	833	845	798	696	552	367				Mol			
11	785	427	320	315	275	250							Mol	Well-Color		
12	850	806	571	782	875	850	826	703	635	571	455	512	Mol	512	502	475
13	870	806	763	677	560	553	486	445	397				Mol			
14	815	791	771	740	700	675	635	382	195				Mol			
15	732	440	385	395	252	246	218	208					Mol			
16	745	640	666	620	547	486	426	365	333							
25X	746	776	819	767	780	733	596	530	450	445			Mol			
26X	740	777	800	768	781	796	735	502	706	650			Mol			
27	699	766	782	700	621	582	460	415					Mol	Brighter Lower than 27 & 28 Corrugated 33% when hot		
28	725	767	796	776	793	757	710	665	602	547	502	502	Mol	492		
29	836	745	636	491	461	377							Mol			
30	732	434	887	677	810	833	67	507	363				Mol	Corrugating - ng		
31	875	870	895	881	940	782		655	522	409			Mol			
32	720	903	906	908	907	887	640	530	416	350			Mol	ringing		
33	838	887	863	881	853	838	766	647	505	458			Carmel			
34	732	772	777	792	800	770	715	618	422	290			Carmel	Dun made		

76.9% grain - 15.38% Corn flakes, 7.69% Caramel.

	Cold	50	100	150	200	250	300	350	400	450	500	550	
35	760	771	785	791	807	795	796	722	650	665	470	448	Minimum limiter Minimum screw 84 gm 16 flake
36	792	791	800	510							600 Pint		Plus bus 50% screw bundles 50 to 20 flake
37	792	756	665	600	547						400		Wikes only - no flow
38	782	570	306	215									KOH rolled
39	587	771	472	477									Caramel 50 Corn flakes
40	772	672	654	619									50 Caramel
41	797	865	815	816	817	745	650	592	435	330			75 Caramel Caramel 100 "
42	805	797	595	492									Tube Pt 146 gm Tube Pt 216 gm
45	710	782	797	792	770	750	665	572	447	380	Caramel		Large cinnamon 39 Packed round vertical
47	800	776	590	492									Caramel
50	493	530	497	460									8 oz long Caramel
51	516	600	400	283									" " Caramel
52	590	532	400	330									1 lb " Caramel
53	600	687	621	611									1 lb " Caramel
54	717	787	725	710	637								2 lb " Caramel
55	750	842	761	792	817	750	570	391	190	63			2 lb " Caramel
56	450	287	225	347									Caramel
57	832	855	717	608	530								Caramel
58	783	695	570	440									Caramel
59	795	837	843	821	672	603							Caramel
60	797	782	767	815	817	578							Caramel
61	798	327	470	330	238								"
62	796	602	500	—	433								"
63	834	935	862	907	850	637	653	470	95				Caramel
64	832	606											"
65	857	865	890	915	882	837	518	440	176				"

	0(0)	50	100	150	200	250	300	350	400	450	500	
66	805	815	825	805	612	542						Carmel
67	777	747	610	465	392							"
68	818	597	471									"
69	763	776	810	595	607							Carmel
70	762	775	797	795	592	697	337	162	0			"
71	745	702	715	690	610	538						"
72	650	22	77									Carmel
73	500	27	167									"
74	662	400	227									"
75	836	690	570	[illegible]	407							Carmel
76	836	830	592	[illegible]	695							"
77	830	767	707	640	542							"
78	825	835	745	565	692							Caramel
79	792	717	843									"
80	800	800	675	692	621							"
81	799	715	660	630	693							Glucose
82	796	665	527	517	517							440 " 530
83	772	822	800	542	567	700	650	550	490	455	492	437 "
84	799	702	740									Glucose
85	815	918	880	911	880	812	697	605	450			"
86	812	650	550	550	525							"
87	824	787	575	582	595							Glucose
88	772	635	525									"
89	840	847	857	875	850	690	565	447	365			"

	Cal	50	100	150	200	250	300	350	400	450	
90	897	642	532								McTrini
91	892	602	476								"
92	868	544	497								"
93	884	707	887	737	682						Rossini
94	902	710	533								"
95	914	707	536								"
96	840	840	785	682	577						Rossini
97	845	778	621								"
98	850	770	627								"
99	866	510	460								Rossini
100	907	531	460								"
101	886	605	462								"
102	906	662	570								Rossini
103	906	625	493								"
104	907	760	650								"
105	897	592	500								Rossini
106	885	628	565								"
107	907	733	533	475	631						"
108	970	856	865	915	765	635					Rossini & Sherlock 12 very hot room
109	877	748	696	662	532						Rossini
110	865	843	850	760	671						Rossini
111	497	408	385								Rossini & K Suffolk
112	525	400	353								
113	572	470	443								

	Col	50	100	150	200	250	300	350	400		
114	773	595	402							Resin	Nickel flake
115	801	700	632							"	"
116	580	533	352							"	"
117	923	903	768	652	442					Mol	
118	892	636	476								
119	830	617	495								
120	817	618	535							Glycerin	
121	887	663	650							"	
122	572	572	480							"	
123	855	745	600							Mol	
124	879	671	611							"	
125	878	687	597							"	
126	732	657	60							Mol	Nickel flake
127	766	587	579							"	"
128	767	655	645							"	"
129	912	745	598							Mol	
130	865	811	777	722	612					"	
131	906	787	702	670	495					"	
132	835	575	500							Mol	
133	785	621	541							"	
134	835	617	512							"	
135	900	937	862	883	575					Glycerin	
136	906	787	600								
137	906	697	557								
138	X										
139											

	Cal	50	100	150	200	250	300	350	400	
140	944	872	835	850	813	630				glucose
141	927	910	880	932	917	700	613	508	456	"
142	847	662	581							"
143	947	742	671							glucose
144	944	797	750	667	592					"
145	953	785	750	667	633					"
146	922	592								Mol ½ Cu fehling ½ Nickel fehling
147	880	820	812	526	652					" "
148	872	640	445							" "
149	898	840	800	737	742	623				Mol.
150	862	715	625							
151	878	640	726	675	578					
152	881	817	812	800	710	612				Mol 212 (Fehling Nickel 74/90)
153	874	730	588							" 194 Nickel — 5 samples (Fehling Nickel 154) equilibrium 24 hours
154	870	927	837	885	852	758	686	630	600	594 Corrected — 6423 7933 — 7997 7990 540 547 — Group 57
155	840	737	650							Mol Nickel fehling — 62½ g 1/10 Nickel
156	907	762	695							" 201.5 (Fehling)
157	857	662	760							" Nickel) Dried 105 degrees C — see Gellée
158	847	785	738	745	657					Mol Nickel fehling — 10 Nickel — 75 x 25 (Fehling)
159	911	765	720	677	586					" 1125 — 550
160	885	865	866	925	1097	787	730	657	635	" 597 598 524 — 563
161	863	700	588							Mol 180.00 g 3000 (Fehling 5000 alg) Mol
162	868	477								"
163	835	642	577							"

64.3	84.9 Mol	21.4	116.6 79.4 10 hours	3.63	15.650	116.30 in 100	

	Cal	50	100	150	200	250	300	350	400	
164	828	537	490						Wol	15000 g 4000 flake 5000 Wol
165	833	661	583						"	"
166	835	605	426						"	
167	830	685	575						Wol	15000 5000 flake 4000 wol
168	881	737	712	X	652				"	
169	847	710	610						"	
170	832	713	566						Wol	15000 7000 flake 7000 wol
171	856	628	675						"	
172	845	670	531						"	
173	832	800	718	712	787	660			Wol	15000 + 6000 flake 7000 wool + 5000 Wol 2
174	825	717	552						"	
175	837	612	626						"	
176	847	665	300						glucose	15000 - 3000 Nickel flake
177	777	725	648						"	"
178	759	781	790	712	482				"	"
179	792	773	816	817	570				glucose	15000 + 4000 flake Nickel flake
180	765	657	412						"	"
181	715	681	568						"	"
182	760	715	685						glucose	15000 + 5000 Nickel flake
183	785	662	548						"	"
184	747	625	517						"	"
185	705	726	723	686	481				glucose	15000 + 6000 Nickel flake
186	737	681	601						"	"
187	725	720	692						"	"

	Cold	50	100	150	200	250	300	350	400		
188	735	790	825	845	920	668				Glucose 18000 7000	Nickel flake
189	697	797	750	787	630					"	"
190	715	790	655							"	"
191	766	778	750	770	626					Mol.	Nickel
192	762	710	562							"	"
193	780	800	800	865	945	645				"	"
194											
195											
196	120										
197	53										
198	1000	932	793	700						Mol.	100 T
199	918	752	592							"	"
200	982	920	786	700						"	"
201	710	605	585							Glucose 100 T	Nickel flake
202	685	645	579							"	"
203	662	490	460							"	"
204	695	550	480							Glucose	Nickel flake
205	676	641	630							"	"
206	645	617	557							"	"
207	702	752	783	650						Cuckoff	
208	592	586	563							"	
209	574	632	560							"	
210	1005	945	917	867	775	632	580	381		Glucose 70 7000	50 Double T
211	987	920	900	782	663	545	447	332		"	70/50 mix
212	990	925	912	782	720	566	450	381		"	"

402 grams

22 grams 7000 / 50 / 2000 / 22 / 7

	Cd	50	100	150	200	250	300	350	400	450		
213	1097	1020	562	271							glucose,	Run in 33%
214	1105	697	340	285							"	"
215	1067	981	316	347							"	"
216	827	900	770	700	570						glucose	Nickel formate,
217	807	665	540	443							"	
218	786	777	862	855	873	770	697	676	647	660	587	
219	803	760	845	835	852	635	580	515	467		glucose	50T 4 hr at. Nickel formate.
220	806	795	740	490								
221	763	732	815	800	652	575	495	432				
222	727	763	785	792	785	777	637	572	507		glucose,	on calcium complex Mix dried 4 hr
223	717	797	792	755	730	690	620	505				
224	717	716	725	680	642							
225	735	761	797	755	698	607	560	462			glucose.	
226	724	757	745	630	563							
230	703	757	745	727	707	662	550	523	471		Cd	10% KOH 10% K_2CO_3
231	762	657	792	560	467	795	758	792			glucose	765 cooler 4 mins under 200
232	625	630	671	587	438	760	725	692			"	737 hot Column first Cmpd
233	572	723	730	710	607	817	777	730			"	821 Kott 4 mins 4 mins three to hot run
234	790	811	825	830	Cd 805	675	697	697	552	515	765	760 glucose.
235	744	792	815	810	831	635	757	635	522	510	502	
236	763	820	857	850	853	847	772	668	565	550	527	
237	767	X	866	795	647	585	460				glucose	
238	722	X	825	797	777	695	622				"	
239	736	X	811	790	742	640	552				"	

	Col 50	100	150	200	250	300	350	400	
240	780	765	620	557	537				Glucose, 100 T
241	770	811	845	810	723	621	512	426	"
242	789	672	585						"
243	820	768	685	505	486				Glucose 50 Double T
244	812	837	870	840	760	606	461	387	"
245	792	630	520						"
246	867	891	908	867	761	605	437	377	* 1 gram Sodium in 247
247	802	718	547	272	130				Glucose " "
248	797	825	782	690	601	480	420	340	" 100 T 4 lbs
249	977	750	575	265	155				" "
250	965	977	987	948	825	573	390		* 1 gram Aluminum — Koff 3% 100 T
251	962	835	682						"
252	903	853	673						"
253	880	712	582	468	365	200			* 1 gram Zn Sulfate Glucose 50 D Tempi —
254	920	907	880	815	671	518			"
255	945	866	757						Glucose 50 Double T.
256	932	661							"
257	936	806	677						"
258	892	502							* 1 gram arsenite K Glucose 50 Double T
259	890	727	617	495	250	242			"
260	900	905	920	887	770	526			"
261	977	750	648	505	155	65			* 1 gram minimum of Glucose Glucose 50 Double T
262	955	800	700	617					
263	860	718	581	461	273	241			1 gram Acetate Lead

Notice Copper —

	Col	50	100	150	200	250	300	350	400				
264	892	857	865	802	515	323				Glucose 50 Double T			
265	921	937	988	940	631	436				"			
266	901	895	841	763	445	320				"			
267	879	885								Glucose			
268	902									Decatitrate			
269	894												
272	923	941	883	845	768	568				Glucose. Burr inside			
273	905	957	965	947	943	917	889	865	875	Burr inside			
274	932	785	732	727	592	422				"			
275	760	840	845	730	697	623	687			Glucose Outside Burr			
276	752	771	720	660	620	568	526			"			
277	745	680	631	540	516					"			
278	942	982	906	561	390					Glucose Thicktitrate Cut out			
279	917	958	967	906	595	568	431			" " Burr outside			
280	953	976	975	847	598	478	365			" " "			
281	932	972	843	840	707	553				Glucose Burr inside Burr inside			
282	925	972	987	1010	1027	847	659	745	715	Glucose "			
283	907	730	630	622	592	391				" " [illegible]			
284	622	660	678	602	552	466	452			Glucose			
285	618	728	741	657	627	531	441			Glucose – Burr outside			
286	623	722	700	652	606	573	435			" 50 Double T "			
287	938	976	971	915	910	800	737	632	570	" "			
288	971	972	947	927	882	703	590	543	500	Burr inside Burr inside, Single T.			
289	937	917	900	887	880	623				"			

62	1.67	1.00	2.04	[illegible]			61.490				

	Cold	50	100	150	200	250	300	350	400		
299	795	921	756	587	520						Glucose 50 sec 4 T to Section
300	883	891	887	572	597	521	415				" " "
301	705	692	625	615	472						" "
305	828	775	643	423	159	787	632	485	430	50 mlg K_2S	70 ml 30 Glucose — X
306	793	830	820	530	87	933	858	785	762	20	put in fresh
307	810	775	640	287	56	864	740	587	450	10 50 Doub T Burns out	KOH —
308	772	770	680	555	580	545		"			
309	770	897	845	603	597	625		"			x Paired segment Curve 24 h Burns outside 50 Doub T
310	770	845	845	692	650	587	597	"			
311	798	892	862	800	750	718	585	"			x lost 15 min nonpulsatile
312	793	785	705	717	690	562	532	"			but fired 6 CC 50 Doub T
313	792	890	903	597	850	707	657	"			
314	883	787	790	642	772	597		"			50 Doub T. Burns out
315	800	787	750	655	582	471		"			" "
316	792	685	620	535	537	447		"			" "
317	798	677	597	370	410	302		"			" "
318	762	812	775	690	571	415		"			" "
319	777	817	785	710	580	447		"			" "
320	798	633	536	481				"			Big Burns — 50 Doub T
321	737	575	440	141				"			" Burns out
322	737	663	525	483				"			"
323	827	925	842	607	442	396		"			Thick Cobalt — Burns out
324	825	857	808	782	540	438		"			" 50 Doub T
325	825	942	908	810	550	441		"			" "
327	863	932	690	642	297	236					Thick Cobalt "
328	785	635	667	500	282	167					50 sec 4 T each

after Last Cold run + 1st 50 hot run
This on 41 tubes much higher than Cold run
47 " a little higher
67 " " Lower
67 " much lower
70 " Very bad — very much lower

Average higher than 50 milamp on 1st hot above Cold between 50 & 100 — so average life 17% hour lower than 50 down to 1 — 1856.
Showing that if after the last Cold run and the last Cold run after 1st 50 hot runs shows anywhere from 1 to 50 points in Capacity higher — The life will be a little better than if the Capacity was higher than 50 to 100 better.
The proportion is as above — roughly —

There is no doubt that if there is an improvement in Capacity the life will be greater than if there is a fall of Capacity

Average of 72 tubes higher after 1st 50 hot is 4615 milamp hours in Capacity

	Cold	50	100	150	200	250	300	350	
329	912	927	761	407					Rosin Burn in
330	890	941	894	555					" 50 D.T.
331	887	856	788	500					" Tried with Cobalt
332	952	955	868	550					Glucose Thick Co Cobalt —
333	953	917	845	605					" "
334	981	958	865	487					" "
335	942	906	642	332					Very thick Burn in
336	930	900	855	587					" " "
337	931	767	538	285					" " "
338	916	915	836	706	623	511			Glucose Thick Co Cobalt 50 Double Hours ~~over~~ 62. 1st Hot 2 milliamp - 50 Dou T
339	917	917	897	897	737	727			" 50 Dou T ~~Hot~~
340	928	920	893	577					Low Koff soak - in only one
341	955	735	669	437					
342	930	865	810	623	492	482			Cane Sugar 33⅓ Koff. Thick Cobalt 50 Double T - cold slow soak
343	995	932	812	515					" "
344	730	762	640	545	468	467			Burn in — Thick Nickel 50 D T
345	732	767	646	571	518	500			Cane Sugar 33⅓ Koff.
346	732	751	593	545	520	490			" "
347	785	647	520	470	425	315			Dug — Rubber after
348	730	742	551	557	495	477			50 Hot runs Yellow
349	782	630	530	580	510	450			same as group 344 —

no Cobalt

group not results				50	66		no loss on any of the 3
group results				50	8		"
"	"			100	9		"
"	"			150	5		"

4) 2267 / 567

4) 2198 / 549

4) 1848 / 462

4) 2050 / 512

4) 2448 / 612

4) 2188 / 547

4) 1955 / 391

4) 2074 / 518

4) 2747 / 687

4) 2791 / 698

4) 1955 / 391

4) 1909 / 477

84 packets, 842 flake Cobalt, mixures flat packets.

	1st	15th	31	74	50 Hot	100 Hot	150 Hot	200 Hot	250 Hot	
1	717	697	588	528	545	405	528	477	425	3.4 Cake
2	715	707	577	598	567	490	550	580	565	
3	693	695	572	586	553	473	500	470	441	
4	622	692	508	576	533	480	472	522	475	
	687	698	567	547	549	462	512	518	477	

Another lots above with E 100 12 of Cake.

	50 Cold	50 Hot	100	150	200	250	300
Started. 607 —	613	490	540	550	530	450	

400# mill Half Items.

No 1	417
2	393
3	353
4	379
5	403
	391

Requires.

	50 Cold	50 Hot	100	150	
1	494	477	417	417	
2	517	445	393	393	
3	571	457	400	373	
4	528	439	400	373	
5	517	430	393	408	
	511	451	399	394	

Cobalt plates & Cups

Req mix — Req press —

Note – The best tubes for life are 2 + 3 Cobalt + 12 + 26X with following proportions – 18000 Green 7875 flake 3375 mol – The green in No 2 thro 20 on 150 + No 3 thro 20 on 40 No 2 not well covered No 3 well covered.

2 3 + 4 were all corrugated on inside 125 atmos, Dally plate flake thick – : No 6 which has flake twice as thick but the best of all 10000 Co to best 70 green 30 flake best proportion, Burn inside best, Green thro 20 on 200 best,

Not more than 12 To 13% of the mix should be binder – Molasses only glucose best, 50 Single Tempi ok 75 better possibly 50 Double tempi better, Warm mix ok –

Corrugating or packing with round nose tool possibly necessary – or at least good, Porosity of green will ~~probably~~ better be satisfied by absorption of water before use of binder so binder will not dry so quick in mixing – Minimum binder good Good Cleaning necessary in best, Wet or dried mix uncertain for long run, Welding of tubes may be necessary as they get hot best and are less attacked, See 26X gets 23 + 12 not so

Flake sieved to screened thro 20 mesh screen,

								Multiplier
350	812 840	351	803 820	352	806 832		60.8 g	2.3 Co
353	908 927	354	911 940	355	880 910		60.8	2.33 Co
356	912	357	860	358	885		61.9	2.54 ni
359	850	360	900	361	923		61.9	2.66 ni
365	950	366	931	367	943		61.9	2.63 Co
368	898	369	826	370	897		61.9	2.53 ni
371	875	372	850	373	862		61.9	2.48 Co
374	855	375	866	376	902		61.9	2.48 Co
377	925	378	915	379	935		61.9	2.6 ni
380	850	381	900	382	882		61.9	2.35 Co
383	883	384	877	385	883		63.3	2.48 Co
386	916	387	933	388	955		63.3	2.49 Co
389	882	390	765	391	850			Co

233 about 1%

350-1-2 – 21000 g Thus 20 fumes in – 4500 g Glue – 9000 Cu fl thus 15 –
5800 5460 5975 – Copper St rings mm on left
3.53 3.49 3.51

353-4-5 – all the except Cu flake thus 20 –
6.325 6973 6377 – mm rings
3.39 3.43 3.41

356-7-8 g 21900 – Same as above except Ni plated – 5.944 5756 5824
mm rings 3.43 3.43 3.44

359-60-61 – 21745 – thus 30 fumes in – 9000 Co – 4500 g – 50 OT Nickel Co
5.394 5.555 5831 – mm rings
3.25 3.28 3.50

365 – 21690 – thus 40 fumes all in – Co flakes – 9000 Co 4500 g –
Co flakes – 50 OT – 6.1685 – 5.925 – 5.1880 –
3.65 3.55 3.53 gm

368-9-370 – Nickel Copper mm rings 21650 – 9000 Cu – 4500 –
no plated – 50 OT – 5.745 – 5651 5835 –
3.47 3.39 3.48

371-2-3 – Dup of 368 except Co plated OT – 5.746 5.740 5.584
3.47 3.46 3.48

374-5-6 21600 – thus 20 fumes – Co plated – rings mm on left – 5.855 – mm rings
9000 Co 4500 g Glue 50 OT – 5.850 5.873 5.849
3.52 3.52 3.52

377-8-9 – 21665 – thus flakes – rings mm put on left – 5.915 5.912 5.915
9000 Co 4500 g – 50 OT – 3.59 3.58 3.59
mm rings

380-1-2 – 21705 – Copper St – Copper Ni – mm sides – rings on bottom Cor
mm rings – flakes off – 9000 Co 4500 g 6.277 6.141 – 6.181 –
3.73 3.75 3.73

383-4-5 – 21615 g – 9000 Co – 3500 g Glue – Co flake rings mm on left
– 50 OT – 5.840 – 5.790 – 5.857
3.16 3.17 3.16

386-7-8 – 21700 Co 9000 g Glue 2500 Co flakes – Tuesday
rings mm on left – 5.970 5.960 5.900 –
3.78 3.79 3.77

389 – 21720 – Co plated Copper St – rings mm left Cor
9000 flake – 4000 g Glue – 5.817 5.814 5.828

No		No		No			
392	917	393	870	394	845	62.7	2.51 in
395	896	396	893	397	892	62.7	2.36 in
398	842	399	820	400	810	62.5	2.39 Co
401	850	402	837	403	874	64.3	2.42 Co
404	962	405	900	406	982	66.5	2.33 Co
407	1008	408	843	409	895	68.8	2.21 Co
410	906	411	893	412	922	70.5	2.33 Co
413	856	414	936	415	957	73.	2.29 Co
416	927	417	902	418	928	75.5	2.15 Co

Metallography

8000	2.42
7000	2.33
6000	2.31
5000	2.32
4000	2.39
3000	2.42
2000	2.42

392-3-4 21955 - 4000 Co Homogeneous Ni plated
after plg Cor 0.33 2.12 - 5743 5753 5854
3.57 3.47 3.53

395-6-7 21900 - Ni plated - 4000 Co Homog
Corrosion - rump on after plg wire - 6283 6253 6100
3.78 3.78 3.77

398-9-400 21670 Co plated - rump on after plg
Corrosion before rings put on - inner rings 4000 Co 4000 g
5844 5710 5648 -
3.52 3.46 3.43

401 21639 - 8000 Coffinite - 4000 g on Coffinite J -
rump on before plg - 5588 5648 - 5593 -
3.48 3.52 3.48

404-5-6 - Dup of 401 except 7000 Coffinite - 21900 gm
6365 6315 6230 -
4.06 4.05 4.00

407-8-9 Dup of 401 except 6000 Coffinite - 22140 gm
6290 6265 - 6137
4.11 4.10 4.07

410-11-12 Dup of 401 except 5000 Coffinite - 21631 g
5401 5590 - 5754
3.91 3.83 3.93

413-14-15 - Dup 401 - except 4000 Coffinite -
21700 - 5645 - 5645 - lost -
4.00 4.00

416-17-18 Dup 401 - except 3000 Coffinite 21650
5923 - 5761 - 5730 -
4.34 4.27 4.27

419	998	420	992	421	950	7812	2.13 Co
422	767	423	772	424	753	6216	2.08 Co
425	815	426	841	427	850	6215	2.33 Ni
428	837	429	850	430	837	6215	2.5 Co
431	776	432	812	433	837	6215	2.33 Ni
434	868	435	882	436	872	6216	2.32 Co
437	823	438	845	439	822	6215	2.43 Co
440	842	441	818	442	842	6215	2.41 Co
443	855	444	880	445	880	[illegible]	[illegible] Ni
446	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Reversal of Cathy
76 good each
Lost magnets
heard them
[illegible]

419-20-21- Disp 401 - Except 2000 Coffeh —
21615 — 6036 6132 6000
4.59 4.62 4.59

422-23-24 21745 - Co plated 9000 Coffeh 4000 g
phd within min plating after Cu strikings drying 10.62
Corrugated + rings fine
5880 6087 6163
3.68 3.81 3.85

425-26-27 - Disp of 423 Except Ni plated bars
21635 — 5707 5732 5877
3.56 3.71 3.67

428-29-30 - 21602 - 9000 Co 4000 g - Co plated
rings Dried before phy — 5450 5652 5507 - non rings
rings + rings phy 3.40 3.53 3.44
431-2-3 - Disp of 428 Except Ni plated T - bars Dried,
rings on before phy 21650 5160 5229 5240
3.22 3.26 3.26

434-5-6 21750 - 9000 Co 4000 g - Co plated T -
rings on before phy - bars - obtained 10 hours next 10 hours
Secondary 10 hours — 6304 6211 6385
3.94 3.89 3.96

437-8-9 - 21600 Co plated T - 9000 Co 4000 g
rings - 684 phy packed round inductor —
5525 — 5644 — 5684 —
3.45 3.53 3.55

440-1-2 21665 - 9000 Co - 4000 g Cu
Co plated T - rings - 684 phy - Cu Ni bars —
run 3 secs nickel then 3 secs Co —
5675 — 5684 5759
3.54 3.54 3.64

443-4-5 Disp 440 except Ni plated T
5854 5938 5902
3.65 3.71 3.70

446-7-8-9 50 —
468-452-473-455-450 — } finish 2.2 for years

451	807	452	830	453	797	6.15	2.4	Co
454	827	455	846	456	830	6.25	2.5	Ni
457	775	458	750	459	750	6.25	2.5	Co
460	835	461	895	462	835	6.19	2.46	Ni
463	812	464	822	465	833	6.37	2.41	Co
466	875	467	868	467½	845	6.37	2.51	Ni
468	832	469	855	470	868	6.17	2.4	Co

446-7-8-9 34 Cu-Ni part (cut pts. 250 ohm) —
C 88 — 5 90.194 — ok

451-2-3 21700 — 9000 Cu — 4000 glue — Co plated T
wrap before play — assembled with old wrap from 31 33 34
5490 5405 5596 —
3.43 3.56 3.49

454-5-6 Dup 451 except nickel plated T —
wrap from old 41 45 55 — 21600 ohms —
5492 5491 5447
3.43 3.43 3.43

457-8-9 21670 — less porous grain — 21600
9000 Co 4000 g — Co plated T — wrap on before —
5498 5433 5323 —
3.43 3.43 3.32

460-1-2 Dup 457 except Ni plated 22060
5573 6012 5784 —
3.50 3.78 3.63

463-4-5 Dup 457 — except 3500 glue
Co plated T 22000 g — wrap on 64 play
5554 — 5656 5624 —
3.53 3.60 3.60

466-7-8 Dup 457 — except 3500 g Cue Ni plated T
Thicker wrap before — 22000 —
5659 5630 5625
3.60 3.60 3.60

468-9-470 Dup 457 except 3500 g Cue
+ 7000 Co flakes — Co plated wrap before
22060 — 5434 5475 5568
3.67 3.68 3.77

474	829	475	817	476	802	624	237	Co
477	881	478	880	479	923	624	2.49	Ni
480	892	481	897	[illegible]	[illegible]			
482	845	483	825	484	812			
484½	862	485	872	486	832			

491 – Dup 457 Except 3500 gm – 7000 Coff
Nickel plated T – unrump on 6 – plg – Metawale

474-5-6 – 21600 – Reg yarn Co plated T – packed
vertical rump (trim) – larger rump put on after
remade ovals – 9000 Co – 4000 gm –
5697 5680 – 5659 –
3.55 3.55 3.55

477-8-9 – Dup 474 – Except Ni plated
Lathes – 21672 – 5799 5845 6097
3.62 3.67 3.80

480-1-½ Remnant 353 & 356 – Co plated
Ni good rump on before –
6003 5818 – [illegible] –

482-3-4 – Remnants 368 & 371 –
used to Dup 356 – rump CP Nickel –
rump on 624 – nickel plated –
5460 5521 5443

484½ 485-6 – remnants 371 & 374 –
Duplicate 368 – CP Ni rump Ni plated Lathes
rump 624 – Ralph Cutting Novelties
5956 – 5687 – 5690 –

487	872	880	855		64.3			
490	968	"	—	—	66.5			
491	930				70.5			
492	1023				73.			
493	768				60.8			
494	865	495	843		63.3			
496	950	497	922		61.9			
498	897	499	847	500	847	61.6	2.57	Co
501	847					61.9		

487-8-9 Remnants, 401 — CP Ni rings —
5.610 5.648 —

490 — Dup. 404 in Copeland tubes.
CP Ni rings — early runs mixed or Nickel tubes
5.710 —

491 Remnants, 410 — nickel tubes early CP Ni rings
5.430 —

492 — Remnants, 413 — CP Ni rings —
5.685 —

493 — Remnants, 350 — CP Ni rings
5.446 —

494 — Remnants 383 — CP Ni rings
5.714 — 5.669

496 — Remnants 365 — CP Ni rings.
Copeland T. — 5.722 5.690 —

498 — 21.705 — 90.00 Co 45.00 g Cu
CP rings on 864 for Copeland T.
Rudolph New Cutting irons 6.007 5.443 5.430
3.701 3.35 3.35

501 — Remnants, 359 — CP Ni rings
Nickel tubes —
6.741 —

502	872	503	850		624.5	2.15	Co	
505	877	506	507	850	624.5	2.15	Ni	
508	772	509	750	570	762	624	2.416	
511-	920	512	938		624	Gold plated Tube 2.52		

502-3-4 21710 — 9000 Co flake nat'l num 1500
Hydrogen 4000 g — Co plated
rings cp 624 pkg 5828 5684 5713
3.64 3.55 3.57

505-6-7 Dup 502 — Except Ni plated T.
5774 5769 5587
3.60 3.56 3.49

508 — 21600 — 9000 Co 4000 g
Copplated rings 624 —
50 Single T 5216 — 5138 · 5236
3.25 3.20 3.26

511-12-13 — Dup 508 except Ni plated T
6239 6131 — 5889 —
3.89 3.82 3.67 mistake 9 grams
probably doubled Temperature amount of hydrogen

Up to this point
Average burn net in Nickel plated
is 3.1560 in Cobalt plated pocket
is 3.1584
Multiplier for Capacity Cobalt Tubes
2.410 Nickel plated tubes 2.498

Burning Capacity for Ni tubes 889 —
" " Co tubes 863 —

514	845	515	817	516	780	521 [illegible] 5 [illegible] 50 [illegible], 523 2 [illegible], 524½ 2 [illegible] 520 OK 522 OK.
517	821	518	792	519	847	
520	742	521	655	522	682	
523	725	524	692	524½	665	
525	795	526	802	527	815	
528	750.	529	737	530	781	
531	822	532	815	533	813	
534	825	535	792	536	828	

514-15-16 21700 absorbed to 21720 9000 Coflake 4000 gl. Co plated tubes 250 mlgms Each cell of Silicate Potash.

517-18-19 — 21630 grm Drop of 514 Except Nickel plated tubes

520-21-22 21600 — Co plated, 9000 flake 4000 gl. 250 mlg/Aluminum Each cell —

523-24-24½ 21730 — Drop of 520 Except Nickel plated tubes

525-26-27 21700 — Co plated, 250 mlg Sulphate Copper

528-29-30 — 21600 Drop of 525 Except Nickel plated tubes.

531-2-3 21 — 9000 Coft 4000 f. Co plated rings on Bof pky 21% KOH, 250 mlg Bismuth Nitrate

534-5-6 — Drop 531 Except Ni plated tubes

537	816	538	836	539	775
540	875	541	888	542	900
543	750	544	745	545	821
546	855	547	850	548	812
555	801	556	835	557	796
558	868	559	870	560	862

537-8-9 Dup 531 Except 21% KOH, 250 mlg Manganate Potash

540-1-2 – Dup 537 – Except Ni plated tubes.

543-44-45 21655 Co plated 9000 Coffeeb 4000 glu – 250 Molybdenum oxide

546-47-48 – 21708 Dup of 543 Except Nickel plated –

549-50-51 – 21683 green 9000 Coffeebothm 20 4000 glu Co plated tubes 21% KOH 100 mlg Barium Hydrate 100 Mlg Calcium hydrate per cc of –

552-53-54 – Dup of 549. except Molybdenum tubes, 21600 green –

555-56-57 – 21720 Co plated, 9000 4000 – 250 mlg Antimony hydroxide –

558-59-560 – 21630 Same as 555 Except Nickel plated tubes

561	832	562	855	563	882	
564	850	565	867	566	883	
570	700	571	700	572	745	

561-62-63 21675 Co plated tubes 9000 & 4000
250 mlg Potassium Chloride -

564-65-66 - 21650 - Same as 561 Except
Nickel plated tubes -

570-71-72 21683 - Co plated tubes -
250 mlg - Gelatin -

573-74-75

643	700	644	795	645	797	
646	807	647	795	648	793	
649	850	650	800	651	831	
652	890	653	908	654	927	
655	915	656	840	657	865	
658	920	659	910	660	953	

643-44-45 21720 4000 Coflake 4000 glu
Co plated tubes - rings on Gelfoil pkg 100
Single Tamps

646-47-48 — 21700. Dup of 643 except
Nickel plated tubes.

649-50-51 21630 Dup of 643 - Co plated
tubes - 100 Double Tamps

652-3-4 21673 Dup 649 except
Nickel plated tubes -

655-6-7 - 21650 - Dup 643 except
75 Double T - Co plated tubes

658-59-60 — 21640 - Dup 655
Except Nickel plated tubes

661	841	662	905	663	878	
664	772	665	715	666	792	
673	895	674	922	675	612	5
676	1026	677	1032	678	1052	

661-2-3 21680 - Dup 643 - 45 single Tamps Co. plated tubes.

664-65-66 - 21600 - 4000 Coflake Thru 20 - 4000 - Glu M plated rings on before pkg 75 single T -

673-4-5 21650 # 4000 Coflake Through 50 mesh - 4000 glucose - Co plated tubes rings on before pkg 50 Double T -

676-7-8 - 21750 - 4000 Coflake Through 50 mesh 4000 glucose Coplated tubes rings on before pkg - 50 Double T

679	1023	680	830	681	923	

679-80-81 21685 Dup of 676.
Except 2000 Co flake thro 50 mesh.

685-86-87 - 21632 gram 2000 Co flake.
thro 50 mesh. 4000 gms Nickel plated
flat flake. 3.4 gram without Cracking -

707	720	708	867	709	800	
710	993	711	1023	712	1020	S. Water ~~[illegible] lost~~
713	935	714	921	715	825	

707-08-09 25485 : 9000 Co flake
Ino 20, 4000 glucose, Co plated tubes
rings on before pkg – 50 Double T – mix
Very wet and sticky too much absorbed
water –

710-11-12 – 21 — absorbed 24 hours
9000 Coff 9000 Glu Ni plated tube
rings on before pkg ?

713-14-15 – 21 — absorbed ammonia 24
hours 9000 Coff 4000 glu Co plated tube
rings on before pkg –

722	885	723	805	724	942
725	822	726	845	727	834
728	868	729	860	730	885
731	800	732	778	733	757
734	757	735	717	736	742
764	860				
765	845				
766	942				

722-3-4 21—— 9000 Cofl 4000 Glu
Co plated tubes rings on bzf pky soaked in
water without changing for 12 hours –

725-26-27 - 21720 - 9000 Cof 4000 g Co plated
Tubes 4000 Glu rings on bzf pky 50 Dark T
Run in 21% Caustic SODA –

728-29-30 21673 - 9000 Cof 4000 Glu Ni
plated tubes 50 DT Run in 21% Caustic SODA
rings on bzf pky

731-2-3 21630 – 9000 Cof – 4000 Glu Co plated
tubes rings on bzf pky Run in 15% Caustic SODA

734-5-6 21700 – 9000 Cof 4000 Glu Ni plated tubes
rings on bzf pky – run in 15% Caustic SODA.

764-5-6 21670 – 9000 Cof 4000 Glu
Co plated tubes – rings on bzf pky 50 DT
for opal tools.

S
1

752-53-54 21650 g. good Co fl Cake: Thus 20
4000 Glue Co placed tubes,
weighs as before pkg. 50 Double T
Run Cold in 21% KOH —

S
1

755-56-57 Dup of 752 - 21610 g
Th placed tubes

S
1

758-59-60 — 21650 g good Co fl Cake
4000 glucose Co placed tubes, weighs
as after pkg 50 Double T Run Cold
in 21% KOH.

761-62-63 — Dup of 758 — ixes of
Th placed tubes 21660 g

827-28-29-30-31 -
21640 green 9000 Coffeeke.
4000 active loaded fuel pkes.
34 arm Cakes
Cement load dried up pkes as bulk of
Mix too great, it feeds Fuel pkes
spaces left over ? ?

	Gold	100	200	300	400	500	600	700	800	
2	777	637	725	736	712	572	475	395		
3	732	—	732	745	726	652	585	532		
4	651	667	740	775	658	632	560	530		Ni flake
6	656	630	645	668	582	549	483	476		
8	717	775	665	670	572	482	400	402		
12	850	871	875	826	635	455	522	475		
24	786	862	873	687	647	587				Ni flake -

6190
247
2476

21000
9176
1824

6

6190
247
6943

619
247
6

6190
247
6943

21950
21000
9176
2774
21950
37530
21950
1897

21950
9000
3500
3750

21000
9176
1824
21000
9000
3500
3750

21000
9176
1824
21000
9000
3500
3750

604
1

21000
9176
1824
21000
9000
3500
3750

21950
9000
3500
3750

619
604
1

21950
9000
3500
3750

21950
9176
1824
21950
9000
3500
3750

619
6
3330
3750

21950
1897
1750
1897

21615
9000
3500
3750
3115

21615
9000
3500
3750

21950
9000
3500
3750

21950
9000
3500
3750

21760
4 hours
4 hours
3797

217900
2297000
21700
1

73

21670
4 hours
4 hours
3797

216500
2605000
19300
1

65.5

21900
7 hours
4 hours
3797

219000
1972000
21600
1

66.5

21655
9 hours
4 hours
3797

218500
2493000
19300
1

62.7

21615
4 hours
4 hours
3797

216500
2293000
20000
1

74.2

21639
9 hours
4 hours
3797

216390
2028000
1434300
1

64.3

21631
6 hours
4 hours
3797

216300
1997000
1

62.7

21670
9 hours
4 hours
3797

216700
2067000
1

62.5

221440
6 hours
4 hours
3797

221400
1932000
2177300
1

68.4

353
2.3
1.76
2.8
5.8
5.8
6.7
5.2
5.8
5.8
3.5
3.6
3.7

353
3.9
1.0.7
1.8.9
2.1.

3.8.9
9.7
2.7.2.8
3.5.8.2
1.0.6

5.9.7.0
6.5.3
3.7.8.1

1.7.9.1.0
2.9.8.5.0
3.5.8.2.0
1.8.9.8.4.1

2.3.0
3.6.3
3.7
0.6
6
3.1

3.8.9.8
1.1.3
1.6.9.4

2.1.7.0.0
1.9.7.6
1.5.7.8
1.9.5.3
2.1.0.7

3.8.9.8
1.1.7
3.9.8.5

3.5.3
2.0.4
2.6.3
1.7.0.0
2.9.3

3.8.9.8
3.7.8.1
1.1.7

2.1.0.0.0.0
1.9.5.3.2
2.0.5.3

3.6.3.9
1.9.1.7

3.6.3.9
1.8.8
3.5.3

2.8.0.0
2.1.0.0.0

1.0.0.0.0.0.0
8.7.0.0.0
4.7.0.0.0
(32.

	5th Cold	1½ hr Hot	110 Hot	150	200	
350	812	840	841	827	827	2000 green no absorption.
351	803	820	825	816	815	4000 flake thro 15.
352	806	832	837	825	822	" " "
353	908	927	943	930	932	No water absorption, flake
354	911	945	965	955	942	thro 20 mesh
355	880	910	935	912	919	"
356	912	912	886	870	895	"
357	860	880	875	867	868	"
358	885	892	892	862	857	"
359	850	850	840	815	812	thro 30 mesh green
360	900	890	887	877	860	thro 30 "
361	923	917	908	895	890	thro 30 "
362						
363						
364						
365	950	945	940	890	882	Thro 40 mesh green
366	931	925	915	865	847	Thro 40 "
367	943	917	900	850	832	Thro 40 "
368	898	865	850	807	800	copper thro 'Reversed'
369	826	835	842	813	815	Copper " "
370	897	865	877	846	817	Copper " "
371	875	855	865	837	820	"
372	850	852	850	827	821	Copper "
373	862	867	857	832	815	

Cut out, rumps heated when 1st put on due to Corrugating

	Cold	50 Hot	100 Hot	150	200	
374	855	860	867	847	840	
375	866	877	878	850	853	Rumps on after pkg
376	902	882	897	870	862	
377	925	920	917	903	910	
378	915	925	896	882	890	Rumps on after pkg
379	935	917	907	892	894	
380	850	886	907	887		Cor rumps on after pkg
381	900	900	822	535		Cor " "
382	852	900	882	626		Cor " " Cut out rumps heated when put on due to corrugating
383	883	895	888	882	870	
384	877	876	888	885	870	3500 glucose
385	883	876	900	892	882	
386	916	910	915	920		
387	933	925	942	932	897	2500 glucose
388	955	950	948	938	917	
389	882	902	890	891	865	Cor Rumps on after Cor
390	765	863	875	876	850	Cor "
391	850	887	883	888	887	Cor "
392	917	920	918	898	895	Cor "
393	870	875	880	860	850	Cor "
394	845	876	880	830	800	Cor "
395	896	940	770	927	918	Cor rumps on after pkg
396	893	942	940	925	917	Cor "
397	892	922	920	912	917	Cor "

		50 Hoff	100 105	150	200	
398	842	857	885	857	750	Cor rings or fin pky
399	820	855	846	755	642	Co "
400	810	855	852	745	685	Cor "
401	850	868	865	850	841	5000 Coflake
402	857	870	864	862	865	
403	840	857	878	862	855	
404	925	981	998	987	948	7000 Coflake
405	900	915	940	915	937	
406	932	925	940	915	890	
407	1000	957	992	952	943	6000 Coflake
408	843	862	906	880	886	
409	895	897	894	867	866	
410	906	925	904	890	895	5000 Coflake
411	893	907	884	845	817	
412	922	940	927	887	860	
413	856	892	865	825	772	4000 Coflake
414	936	915	885	808	750	
415	957	917	921	848	842	
416	927	940	912	770	747	3000 Coflake
417	902	917	877	770	747	
418	928	907	818	720	712	
419	993	780	697	602	592	2000 Coflake
420	992	815	663	572	530	
421	950	872	751	625	590	
422	761	855	875	837	696	Cor pkd without Plug-soaked
423	772	855	900	907	775	Co put in from Corrugated v. rings
424	753	900	918	863	731	Cor " "

		50 Hot	100 Hot	150 Hot	200	
425	815	865	886	800	877	Cor after soaking & dumping
426	841	887	902	832	890	Then [illegible]
427	850	905	900	830	851	
428	837	841	838		818	Mix dried before piling
429	850	865	868		840	Mix "
430	837	842	850		830	Mix "
431	776	801	785	787	752	Mix "
432	812	822	806	807	787	Mix "
433	837	835	817	815	783	Mix "
434	868	907	896	916	910	Slight rain in the night in the [illegible]
435	882	920	911	920	911	"
436	892	923	931	925	913	
437	823	843	843	837	817	Packed U shaped Tamping rod
438	845	870	867	858	841	"
439	822	842	857	870	865	"
440	842	845	847	857		Cutting from Forward
441	818	842	850	860		Completed
442	842	820	855	866		
443	855	862	875	885		Cutting from Rear
444	880	885	895	900		Completed
445	880	875	885	892		
446	468	490	492	485	428	filled place
447	450	487	450	442	400	
448	473	502	485	467	437	

X468 on 100 showed bad changed now then OK –

		90 Hot	Hot 180	1½ hr	200	
449	455	471	480	[illegible]	388	
450	450	487	470	[illegible]	393	
451	807	827	826	808	797	Compared with old mono
452	830	861	846	832	850	
453	797	846	843	838	812	
454	827	857	850	845	837	Dup 451 –
455	846	881	862	850	837	
456	830	835	833	822	827	
457	775	810	812	825	800	Less porous (Green)
458	750	810	800	808	785	21600 –
459	750	780	774	762	752	
460	835	857	830	816	790	Dup 457 but much more water absorbed
461	895	925	920	920	930	
462	835	886	871	863	875	22060 ?
463	812	843	840	832	817	Phenolic - 3500
464	822	871	858	847	820	Co plated
465	833	847	850	825	842	
466	875	871	868	850	838	Phenolic 3500
467	868	871	877	875	850	Nickel plated
468	845	871	850	853	825	
468	832	870 ?	840	877	752	Phenolic 3500
469	855	850	832	815	782	Nickle Co flake
470	868	887	886	856	812	Co platinit
471						
472						
473						

		50 Hot	100 Hot	150	200	
474	827	850	852	837	810	Oval rings —
475	817	835	840	537	805	
476	802	836	832	827	805	
477	881	908	905	900	875	Oval Rings —
478	880	895	905	906	902	
479	923	941	955	941	924	
480	892	897	907	[illegible]	903	Remnants 356 & 356
481	897	900	915	[illegible]	913	
482	845	843	843	[illegible]	831	
483	825	842	838	[illegible]	805	Remnants 368 & 371
484	812	837	834	[illegible]	838	
485	862	900	900	900	891	Remnants 371 & 374 Remnants
486	872	896	858	882	880	
	832	851	862	852	842	Duplicating 368 in part
487	872	893	891	880	844	Remnants 401 (in plate)
488	855	860	872	871	850	
489						
490	968	921	886	838	827	Dup of 404 —
491	935	900	866	800	786	Remnants of 410
492	1025	936	863	830	785	" of 413
493	768	800	803	805	783	Remnants of 350.
494	865	885	877	898	878	" 383
495	843	785	887	883	871	

April 5th 1906 —

Remark 1st run 50 Hot up to Nos 512
shows Highest.

940 — 7000 Co flake
935 Ni plated Corrugd rings after Cor
929 green thro 40 mesh
928 2500 glue ave
927 green thro no water exception
920 Ni plated Corrugd rings after Cor
917 Chgd 10 h rest 10 to low

This looks like 40 or 50 mesh 8000 or 9000
flake 3500 glue ave Ni plated
tubes Corrugated high pressure
rings put after Corrugating
& Charged 10 rest 10 chg 10 first 10 on
see increased Capacity & working 24 hours

		50 Hot	100 Hot	150	200	Remarks
496	950	930	937	908	900	[illegible] 364
497	922	891	872	853	827	
498	897	892	905	900		
499	847	850	865	852	822	new Cu flake from
500	847	847	841	825	807	
501	847	917	915	916	910	
502	892	892	900	885	860	Co flake
503	850	872	868	867	831	Co
504						
505	877	892	900	865	830	flake
506						Ni tubes
507	850	867	857	838	817	
508	772	765	787	755	737	Simple Tubes
509	750	767	767	727	710	Co plated
510	762	765	768	725	687	
511	920	930	955	952	950	Simple 50
512	938	950	945	933	910	Ni plated
513						
514	845	866	857	845		250 mesh Orifice after Pelletts
515	817	838	832	833		Tubes Co tubes
516	780	800	791	785		
						Dropped
517	821	847	830	830		Dup of 514 Ni Tubes
518	792	800	790	792		
519	847	847	840	842		

		50	150	150	
		697	697		
520	742		720	400	
521	652	572	335	190	250 mlg Aluminum Co tubes Tube surface [illegible]
522	682	732	380	267	
523	725	580	290	140	250 mg Aluminum Dup 520. ni tubes
524	692	572	425	146	
525	662	562	360	150	
525	792	830	835	840	250 mlg Copper sulphate, Co tubes
526	802	846	850	850	
527	815	845	837	840	
528	750	775	777	775	Dup 525 ni tubes
529	737	745	755	770	
530	751	806	800	802	
531	822	840	855		250 mlg Bismuth Nitrate, Co tubes
532	815	817	847		
533	813	840	850		
534	825	857	895		Dup 531 - ni tubes
535	792	832	872		
536	828	860	900		
537	816	875	900		250 mlg Manganous Potassium Co tubes
538	836	887	907		
539	775	842	847		
540	875	890	916		Dup 537 - ni tubes
541	888	897	917		
542	900	915	935		
543	750	800	807	825	250 mlg Lead Oxide - Co tubes
544	745	767	750	765	
545	821	813	780	792	

		Billet	100 Hot	155	
546	855	898	886	900	Dup 543 Ni tubes.
547	850	886	875	872	
548	812	886	868	875	
549	827	840	850		100 mlg/cmch - BaOH
550	812	800	856		+ CaOH.
551	827	855	871		G
552	882	885	910		
553	862	842	886		"
554	846	853	881		Ni
555	801	840	823	847	250 mlg Antimony Hydroxide
556	835	845	835	850	Co tubes
557	796	800	788	800	
558	868	877	880	880	Dup 555 - Ni tubes.
559	870	877	885	900	
560	862	896	886	885	
561	832	885	866	875	250 mlg KCl Chloride
562	855	891	881	885	Co tubes
563	882	912	903	910	
564	850	878	870	880	Dup 561 - Ni tubes
565	867	900	890	900	
566	883	900	890	897	
567					gathered
568					
569					

		50 Hot	100 Hot	150 Low	
					250 mg —
570	700	728	648	777	Hahn —
571	700	550	215	850	OC. tube —
572	745	700	521	740	
573					Thru 20
574					"
575					"
576					"
577					"
578					"
579					"
580					"
581					"
582					"
583					"
584					"
585					"
586					"
587					"
588					"
589					"
590					"
591					"
592					"
593					

		Stilet			
X 594 ✓					Ilus 20
X 595 ✓					"
X 596 ✓					"
X 597 ✓					"
X 598 ✓					"
X 599 ✓					"
X 600 ✓					"
X 601 ✓					"
X 602 ✓					"
X 603 ✓					"
X 604 ✓					"
X 605 ✓					"
X 606 ✓					"
X 607 ✓					"
X 608 ✓					"
X 609 ✓					
X 610 ✓					
X 611 ✓					
612 ✓					
613 ✓					
614 ✓					
X 615 ✓					Ilus 20
X 616 ✓					"
X 617 ✓					"

X 618 ✓						Thu 20
X 619 ✓						"
X 620 ✓						"
X 621 ✓						"
X 622 ✓						"
X 623 ✓						"
X 624 ✓						"
X 625 ✓						"
X 626 ✓						"
X 627 ✓						"
X 628 ✓						"
X 629 ✓						"
X 630 ✓						"
X 631 ✓						"
X 632 ✓						"
633 ✓						
634 ✓						
635 ✓						
636 ✓						
637 ✓						
638 ✓						
639 ✓						
640 ✓						
641 ✓						
642 ✓						

		Hot 50	Hot 100	Hot 150	
643	700	817	795	787	900 of 4000 g. Co tubes
644	795	815	802	795	ring on bottom flg 100 Double
645	797	825	820	820	Temp. –
646	807	855	866	850	Dup 643 except Ni tubes
647	795	845	866	860	
648	793	830	830	836	
649	850	877	891	891	Dup. 643 Co plated
650	800	837	835	836	100 Double T
651	831	825	877	872	
652	890	917	932	925	Dup 649 except Ni plated tubes
653	908	936	950	955	
654	927	950	940	950	
655	915	900	930	922	Dup 643 except 75 Double T
656	840	875	881	873	Co tubes –
657	865	850	895	887	
658	920	967	982	987	Dup 643 except 75 Double T
659	910	941	955	948	Ni tubes –
660	953	975	996	995	
661	841	903	915	912	Dup 643. Co tubes 75 Single T
662	905	906	930	921	Co plated.) –
663	878	905	907	912	
664	772	803	787	790	Ni plated Dup 661- 75 S T –
665	775	796	785	792	
666	792	803	795	800	

		50 Hot	Hot 100	Hot 150	
667					graphite.
668					Thro 20
669					"
670					"
671					"
672					"
673	895	882	885	885	Reg except 9000 flake. Thro
674	922	911	930	916	50 mesh
675	612	920	935	916	
676	1026	945	875	782	Reg except 4000 flake Thro 50 mesh
677	1032	976	890	817	
678	1052	930	762	737	
679	1023	662	565	550	Drop 676 except 2000 flake
680	830	630	520	550	Thro 50 mesh
681	925	617	442	442	
682					
683					
684					
685	461	357	362		
686	462	340	350		
687	413	337	360		
688	411	362	366		
689	452	352	747		
690					
691					

See notebook 715 and it must take.

Pumps busted on all groups.
water pumps ok swelled bad between
pumps or dynamo now. 712 let alone
2st — 100th Run.

	50	100 Hot 50	100 Hot	150 Heat	
692 v					
693 v					
694 v					
695 v					
696 v					
697 v					
698 v					
699 v					
700 v					
701 v					
702 v					
703 v					
704 v					
705 v					
706 v					
707	720	820	817	767	25485 absorbed 9000 flake 4000 g — Co Lubricant pump [illegible]
708	847	953	912	941	pump go OK. mix very wet
709	800	926	967	772	not tricky —
710	993	1060	1025	925	Run [illegible] green absorbed
711	1023	1056	1057	1025	water 24 hours.
712	1020	1065	965	791	Ni Lubr.
713	935	931	935	842	Run absorbed Nitr 24 hr
714	921	956	925	947	Co Lubr.
715	825	940	917	876	

		50	100	150	
716					
717					
718					
719					[illegible]
720					
721					
722	885	806	790	781	Soaked — H_2O without
723	805	821	805	821	Changing for 12 hours
724	942	857	807	775	
725	822	822	826		Cotton — Ring —
726	845	852	845		21% Caustic Soda
727	836	827	820		
728	868	867	848		Mutton —
729	860	860	857		Dup 725
730	885	915	887		
731	800	857	840		Cotton
732	778	800	812		Run 15% Soda
733	757	825	795		
734	757	835	825		Mutton
735	717	800	790		Dup 731
736	742	807	806		
737					
738					
739					

743 - started here on the 2nd large make of tubes after return from Fla — New flake 0001 thickness. Think it Dank as that previous in thickness & its as good quality. The only difference is perhaps the stick together little more in Hydrogen & somewhat more twisted by using the stirring rods in big pot, it dont appear to be as tough though I may be mistaken in this its very bright & good —

740 ✓							
741 ✓							
742 ✓							
✓ 743 ✓	795						Two 20
✓ 744 ✓	782						"
✓ 745 ✓	807						"
✓ 746 ✓	810						"
✓ 747 ✓	900						"
✓ 748 ✓	857						"
~~749~~							
~~750~~							
~~751~~			1000	150	200		
752	900	950	993		955		Cold
753	802	880	887		861		Co
754	815	925	938		912		
755	800	917	913		900	cold	Cold Co
756	877	967	980		972	"	
757	957	997	1010		990		
758	831	950	987		927	cold	Cold Co
759	832	918	940		903		
760	895	992	1000		967	cold	Cold
761	960	1030	1045		1040		
762	877	950	972		1000	cold	Cold
763	947	1025	1032		1017	"	Rungen after pkg

764	860				Req – for opel tools
765	845				
766	942				
~~767~~ no					
~~768~~ no					
~~769~~ no					
~~770~~ no					
~~771~~ no					
~~772~~ no					
773 v	842				Thru 20
774 v	825				"
775 v	872				"
776 v	900				"
777 v	855				"
778 v	882				"
779 v					Thru 50
780 v					"
781 v					"
782 v					"
783 v					"
784 v					"
785 v					Through 80
786 v					"
787 v					"
788 v					"
789 v					"

790 ✓	Thus 80
791 ✓	Thus 100
792 ✓	"
793 ✓	"
794 ✓	"
795 ✓	"
796 ✓	"
797 ✓	
798 ✓	
799 ✓	
800 ✓	
801 ✓	
802 ✓	
803 ✓	
804 ✓	
805 ✓	
806 ✓	
807 ✓	
808 ✓	
809 ✓	
810 ✓	
811 ✓	
812 ✓	
813 ✓	
814 ✓	

	Hot 50	Hot 100		
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27	518	507	490	
28	480	500	472	
29	487	482	468	
30	517	502	455	
31	432	465	430	
32				
33				
34				
35				
36				
37				
38				

837	Ilwo 2
838	"
839	"
840	"
841	"
842	"
843	"
844	"
845	"
846	"
847	"
848	"
849	"
850	"
851	"
852	"
853	"
854	"
855	"
856	"
857	"
858	"
859	"
860	"
861	"
862	"

863						[illegible]
864						"
865						"
866						"
867						"
868						"
869						"
870						[illegible]
871						"
872						"
873						"
874						"
875						"
876						"
877						"
878						"
879						"
880						"
881						"
882						Thirty 20
883						"
884						"
885						"
886						"
887						"
888						"

889					Thru 20
890					"
891					"
892					"
893					"
894					"
895					"
896					"
897					"
898					"
899					"
900					"
901					"
902					"
903	767				"
904	828				"
905	830				"
906	892				"
907	840				"
908	870				"
909					"
910					"
911					"
912					"
913					"
914					"

Separation of Nickel from Cobalt
to slightly acid solution of the two metals
add solution of Potassium Xanthate
wash by decantation, add Ammonia diluted
with equal bulk water, Thus dissolves
quickly the Xanthate Nickel leaving
Cobalt undissolved –
Thompson Chem News XXXV 270
XXXVI 150. Zn can also be separated
as a Xanthate

Separation Co & Ni from arsenic ores,
method using H_2S to remove arsenic –
peroxidize the solution precip by Na Carb
wash then add to moist precip strong
Sol Oxalic acid, in excess. Whole of
Arsenic & ferric ox passes into
solution, Mixed oxalates after thorough
washing separated by Ammonia
if any Co present it can be sep by metallic
iron before peroxidizing & precipitating by Na Carb –
Wohler Deut Chem Ber X 546 –

Zinc can be separated from Co by volatilizing of its Chloride,

Maybe switching in Erdmann's Ammonia Nitrites of Cobalt. They are the only known instances where Cobalt by Combn with Ammonia & Nitroxyl form an Electro-Negative radical

See 1st Vol 3rd Dupl p 557 in process work Cu which may be applicable to Wed — Bede Metal Wks Jarrow England

Try — Lelands Black Cupric OX obtained by precipitation, then reduced by Quicksilver that will not reduced CuO black made by dry way — perhaps precipitate $CuSO_4$ by KOH hot or with little H_2O_2

See if HCl passed into Acetone or amyl al will act on Ni Cu flakes to dissolve the Cu & not the Ni —

Perhaps anhydrous KCy in other solvents than H_2O for instance amyl alcohol, will dis Copper + not Nickel —

Possibly strips of flake Ni Cu as anode in KOH, in which KCl or Salicylic acid —
— the present will dissolve the Cu + plate over leaving the Nickel untouched —

1 = Test an iron pocket that has run a long time with a tube having Co flakes see if any Cobalt in the iron —

2 25% Sulphide Co 75 Sul 72 ignited & then Reduced by Hy probably Hy not necessary as Co will not probably oxidize Try with & with Hy — also pieces & run & green & run to chips Fe & then dry & Elect Electrolytic & prepare —

915						Ilwo 90
916						"
917						"
918						"
919						"
920						"
921						"
922						"
923						"
924						"
925						"
926						"
927						"
928						"
929						"
930						"
931						"
932						"
933						"
934						"
935						"
936						"
937						"
938						"
939						"
940						"

941	Thos Pope
942	"
943	"
944	"
945	"
946	"
947	"
948	"
949	"
950	"
951	"
952	"
953	"
954	"
955	"
956	"
957	"
958	"
959	"
960	"
961	"
962	"
963	"
964	"
965	"

966					Thro 90
967					"
968					"
969					Reg quite mix
970					"
971					"
972					"
973					"
974					"
975					Thro 90
976					"
977					"
978					"
979					"
980					"
981					"
982					"
983					"
984					"
985					"
986					"
987					"
988					"
989					"
990					"

991					Thu 30
992					"
993					"
994					"
995					"
996					"
997					"
998					"
999					"
1000					"
1001					"
1002					"
1003					"
1004					"
1005					"
1006					"
1007					"
1008					"
1009					"
1010					"
1011					"
1012					"
1013					"
1014					"
1015					"

1016					Thro 30
1017					"
1018					"
1019					"
1020					"
1021					"
1022					"
1023					Reg from mfg
1024					"
1025					"
1026					"
1027					"
1028					"
1029					Reg flat pk from
1030					"
1031					"
1032					"
1033					"
1034					Thro 30
1035					"
1036					"
1037					"
1038					"
1039					"
1040					"

1041	Thu 20
1042	'
1043	'
1044	'
1045	'
1046	'
1047	'
1048	'
1049	'
1050	'
1051	'
1052	'
1053	'
1054	'
1055	'
1056	'
1057	'
1058	'
1059	'
1060	'
1061	'
1062	'
1063	'
1064	'
1065	'

1066						Ilmo 90
1067						1
1068						1
1069						1
1070						1
1071						1
1072						1
1073						1
1074						1
1075						1
1076						1
1077						1
1078						1
1079						1
1080						1
1081						1
1082						1
1083						1
1084						1
1085						1
1086						1
1087						1
1088						1
1089						1
1090						1

1091	Thro 90
1092	"
1093	"
1094	Thro 20
1095	"
1096	"
1097	"
1098	"
1099	"
1100	Thro 90
1101	"
1102	"
1103	"
1104	"
1105	"
1106	"
1107	"
1108	"
1109	"
1110	"
1111	"
1112	"
1113	"
1114	"
1115	"

		Hot 50				Thro 90
1116						
1117						1
1118						
1119						1
1120						1
1121						
1122						1
1123						
1124						1
1125						1
1126						
1127						1
1128						1
1129						1
1130	853	893				1
1131	905	921				
1132	852	875				
1133	895	915				
1134	927	938				
1135	925	943				
1136						
1137						
1138						
1139						
1140						
1141						

		Kal 50
1142	792	867
1143	800	877
1144	887	948
1145	777	903
1146	840	928
1147	900	953
1148	870	920
1149	827	840
1150	906	903
1151	945	967
1152	927	961
1153	908	903
1154	770	887
1155	827	866
1156	817	850
1157	871	947
1158	858	938
1159	847	898
1160	772	822
1161	787	845
1162	776	816
1163	881	940
1164	890	960
1165	858	860

	b^4 Gl	Kof 50
1166	866	858
1167	815	800
1168	878	867
1169	926	950
1170	923	965
1171	947	972
1172	845	880
1173	908	900
1174	900	907
1175	943	937
1176	930	947
1177	891	900

18000 5000 mol - 6000 flak
42 16.4 20.6

180900
162000

37%

352
22
130

352
40
1408

222

352
37
2464
1056
13024

352
38
2816
1056
13376

250
75
1250
1750
18750